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ABSTRACT

As the 20th century closes, Americans access information via a variety of media, and, for most, print is not premier among these. Nonetheless, printed texts, at least in academic arenas, remain the "gold standard" by which other media are valued. The Center on English Learning and Achievement's (CELA) Technology and Literate Thinking project has been exploring school-based notions of "literacy" and what it means to be literate in contemporary society. In focus groups, teachers and students from diverse school settings have discussed literacy and linked literature to paper-based presentations and literacy to decoding and encoding printed text. On the other hand, media logs kept by these same persons indicate that they get by far the majority of their news, information, and entertainment through electronic sources. Now being investigated is how literacy might be redefined to incorporate reasoning from, with, and about electronic "texts." The issue is being examined from three perspectives: clarifying what is essential in "literate thought"; exploring what is gained and the limitations of the symbol systems employed in electronic literatures; and studying how students of varying ages actually engage and "read" electronic texts. To foster literacy in the 21st century, a better understanding is needed of how media characteristics and curricular contexts combine to foster or inhibit language acquisition and literate thinking. (NKA)

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Electronic texts and literacy FOR THE 21ST CENTURY

BY ROBERT L. BANGERT-DROWNS AND KAREN SWAN

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Robert Bangert-Drowns and Karen Swan each direct research within CELA's Technology and Literate Thinking project. We will share the results of their research in future issues of the Update.

A hundred years ago, print was the currency of the literate. As the twentieth century closes, Americans access information via a variety of media, and, for most, print is not premier among these. Today, signs of mind and speech are sustained on electric currents. Such changes led the authors of the 1996 NCTE/IRA Standards for the English Language Arts to state:

> . . . being literate in contemporary society means being active, critical, and creative users of print and spoken language, as well as the visual language of film and television, commercial and political advertising, photography, and more . . . . Based on this expanded definition of literacy, the English language arts standards address not only reading and writing, but also speaking, listening, viewing, and visually representing.

Nonetheless, printed texts, at least in academic arenas, remain the "golden standard" by which other media are valued.

Indeed, CELA's Technology and Literate Thinking project has been exploring school-based notions of "literacy" and what it means to be literate in contemporary society. Teachers and students from a variety of school settings have discussed literacy with us in focus groups. With impressive consistency, they linked literature to paper-based presentations and literacy to decoding and encoding printed text. Very few were willing to include the use of "the visual language of film and television, commercial and political advertising, or photography" in any conceptualization of literacy, even when explicitly asked.

On the other hand, media logs kept by these same teachers and students indicate that they, like most Americans, get by far the majority of their news, information, and entertainment through electronic sources. More than 40 teachers indicated that on average they spent 4 to 5 times as

much time with television, radio, and computers than with newspapers, magazines, and books.

Thus our research has also begun investigating how "literacy" might be redefined to incorporate reasoning from, with, and about electronic "texts." We are examining the issue from three perspectives: by clarifying what is essential in "literate thought"; by exploring what we gain and how we're limited by the symbol systems employed in electronic literatures — their affordances and constraints; and by studying how students of varying ages actually engage and "read" electronic texts.

The notion of "literate thinking" encompasses a lot more than the simple encoding and decoding of symbolic messages. Literate thinking entails at least the ability to:

- interpret formal features to form aesthetic appreciation;
- take multiple perspectives to entertain multiple interpretations;
- derive personal and cultural meanings from a common "literature";
- interweave intellectual, perceptual, and affective understandings in the interpretive process.

We believe these more complex abilities can and should be applied to electronic literatures. But what are the affordances and constraints of electronic media? How might different symbol systems influence interpretations of readers and viewers? Electricity is fast and ephemeral. What once was tangible, relatively permanent, invariably sequenced, and largely alphanumeric has become insubstantial, more easily transformed, flexibly sequenced, and multimodal. Electronic literature might empower or hinder the development of English language arts and literate thinking.

In the sidebar we consider three illustrations of electronic literatures. Obviously, the marriage of electronics and literature might affect literacy profoundly. We've considered only three of the myriad possible forms of electronic literature, and these forms can be combined in various multimedia. Research is just beginning to shed light on the meaning-making possibilities and pitfalls inherent in electronic literature. To foster literacy in the 21st century, we need to better understand how media characteristics and curricular contexts combine to foster or inhibit language acquisition and literate thinking.

(sidebar)

VIDEOS show temporal changes in vivid and realistic representations and provide holistic information about physical environments and the body language of speakers. They can be used to create multimodal environments rich in affect and interpretive possibilities. Newer technologies allow viewers to repeat all or parts of a presentation. Given engaging images and visual cues for understanding spoken language, video would seem a natural aid for developing English language arts. However, the arresting and concrete nature of visual representation could inhibit literate thinking. Viewers may be so taken by vivid visuals that they suspend their ability to reflect on elements of form and to entertain alternative interpretations.

HYPERTEXT provides multiple links among units of text, allowing users to trace ideas in immediate and idiosyncratic directions. When it presents a narrative, hypertext allows readers to explore alternative story plots. Any unit of text can take on different meaning depending on the text sequence through which it is found. Hypertext can be a powerful tool for language acquisition because each link can provide a new dimension of meaning to the previous link that preceded it. Because readers can view the same text from a variety of perspectives and experience the conceptual structure among a group of ideas, hypertext also could promote literate thinking. However, one could just as easily become lost in the maze of links and fail to understand the meaning of text interconnectedness.

COMPUTER-BASED SIMULATIONS allow users to test manipulations of characteristics of a system — a mechanical device, an organism, an ecosystem, an economy, an institution. The information represented in simulations is dynamic and interactive. Because simulations are often more visual than verbal and because their primary purpose is to represent interactions among system elements, they may not be suited to the development of English language arts. However, because they provide experiences ripe with interpretive possibilities and allow users to test the importance of understanding a system from a variety of perspectives, they could foster literate thinking powerfully if students can mindfully manage multiple variables and note the significance of different manipulations.